

DIGITAL DELAY MACHINES
SDE SERIES
SDE-3000/1000/2000



Electronic Musical Instruments



SDE-1000

New, Powerful Programmable Digital Delay Machines

- Because they are programmable, the SDE-3000 and 1000 can memorize all settings on the front panel except the input attenuator.
- The SDE-3000 has eight programmable channels and a super-long delay of up to 4,500 ms. The SDE-1000 has four programmable channels and a delay of up to 1,125 ms. Both are superbly functional and easy to play.
- Memories are backed up by a battery even when the power switch is turned off.
- The digital compounding PCM enables the SDE-3000 to obtain a dynamic range of 100 dB and a THD of 0.03%.
- Quality sound design: the frequency response of 10 Hz to 17 kHz (when the SDE-3000's delay time is set between 0 and 1.5 seconds and the SDE-1000's delay time is set between 0 and 375 ms), ensures low distortion and low noise.
- The delay time can be set in increments of 0.1 ms from 0 to 10 ms, and in increments of 1 ms for times over 10 ms. This allows a flanging effect to be faithfully reproduced.
- The digital display is highly accurate ($\pm 0.4\%$) and allows you to see the settings directly. It ensures easy, faithful reproduction of all settings.
- Numerous remote control jacks:

① Delay on/off

Fully independent remote control jack turns only the delay on and off.

② Hold on/off

When turned on, the input sound is endlessly repeated and the tempo is adjustable.

③ Playmate

This allows real-time setting of delay time using the optional DP-2 pedal switch even a performance is conducted at the preset delay time. This is especially convenient when you desire a long delay in part.

④ Preset shift

Stepping on the connected pedal switch shifts the memory channels one after another.

- Mix and Delay output jacks are provided so that you can easily enjoy a chorus effect in stereo.
- Two SDE-3000's can be synchronized with one another using the modulation CV INV OUT jack. You can enjoy a full-bodied sound in stereo.
- The SDE-1000 is equipped with a modulation foot control jack. Connect an optional FV-20 foot volume to control the modulation.



* All dimensions in the right figure apply to both the SDE-3000 and 1000.

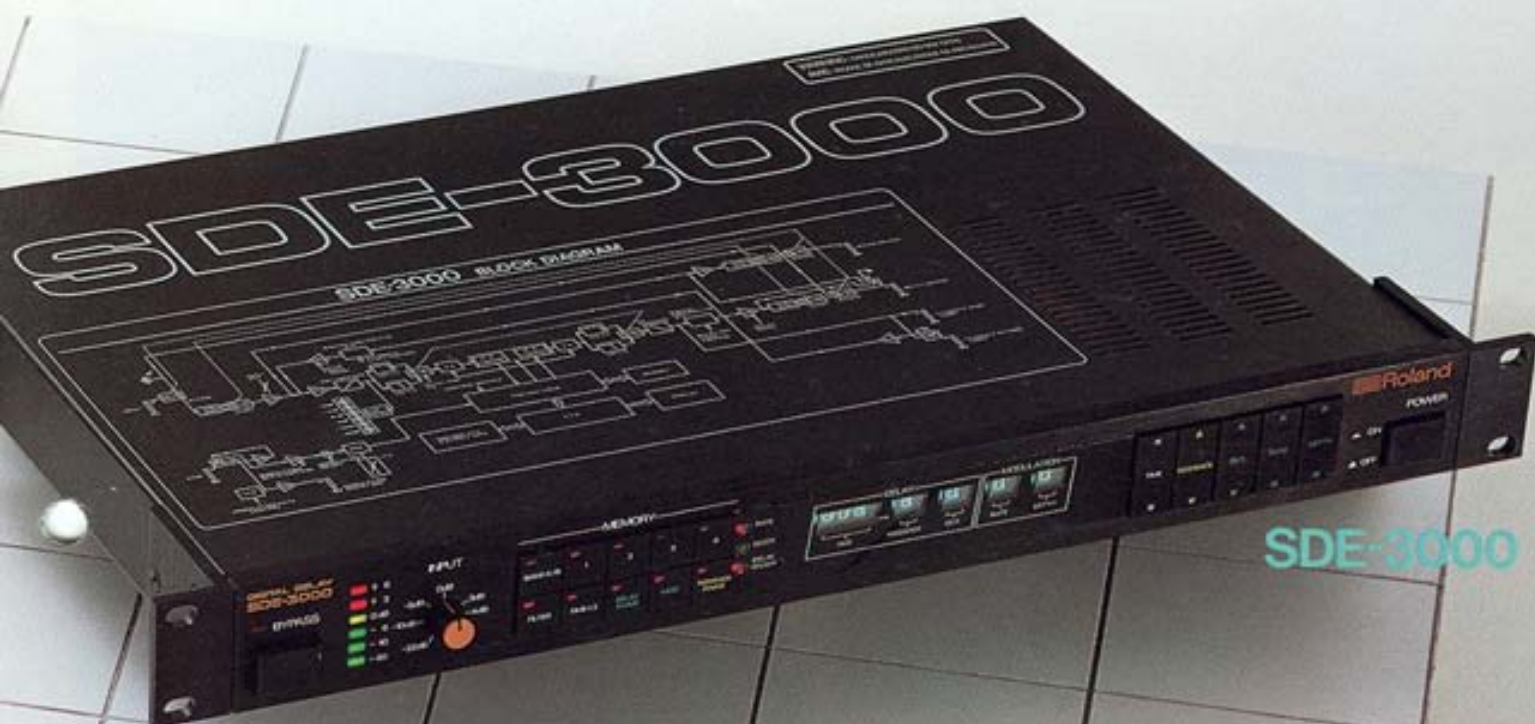


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SDE-3000

SDE-1000



SDE-3000

Programming Procedure

All settings on the front panel, except the input attenuator, can be memorized.

1. At first, set the functions, such as delay time, modulation, etc.
2. Select bank A or B using the memory bank select button.



Every time you push this button, the bank shifts alternately.

3. Select the channel for the settings to be memorized. Keep the selected channel button pressed for about two seconds.

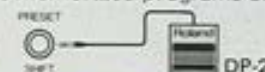


4. When the program is completely memorized, the indicator on the channel button will light. (The figure above shows that the program is memorized in channel 1 of bank A.)

Note: When the channel button is released as soon as it is pressed, the program which has already been memorized in the channel is called.

Preset Shift

When an optional DP-2 pedal switch is connected to the preset shift jack on the rear panel, you can use it to shift the memorized programs one after another.



How to Edit Programs

1. Call the program to be edited using the memory bank select button (the SDE-3000 only) and the memory channel select button.

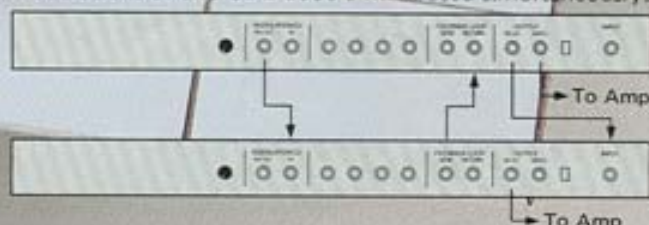


The figure at left shows that channel 2 of bank B has been called.

2. Edit the program as desired.
3. Store the edited program for later recall (see "Programming Procedure").

How to Synchronize Two SDE-3000's

The modulation CV INV OUT jack synchronizes the modulations of two SDE-3000's when used simultaneously.



Furthermore, a delay time of nine seconds can be obtained using two SDE-3000's.

How to Use the Playmate Function

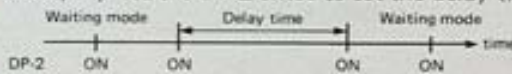
1. Connect an optional DP-2 pedal switch with the Playmate jack on the rear panel.



2. When the DP-2 is depressed, the delay time display will appear as in Fig. A. This is the waiting mode for setting delay times using the Playmate function. * In this mode, the delay on/off indicator is off.



3. Next, depress the DP-2 twice to set the delay time.



4. Depress the DP-2 to return to the waiting mode.

5. To return to the memorized program, step on the pedal switch connected to the preset shift jack.

Normally, the SDE-3000 has a delay capacity of about three seconds, and the SDE-1000 has a delay capacity of about 0.75 seconds. You can set the delay time within the range of the delay capacity when the Playmate function is used.

SPECIFICATIONS

	SDE-3000	SDE-1000
Input level	+4 dBm, -20 dBm	-20 dBm, -35 dBm
Input impedance	56 k Ω (+4 dBm), 560 k Ω (-20 dBm)	560 k Ω (-20 dBm), 560 k Ω (-35 dBm)
Output level	+4 dBm (+18 dBm max), -20 dBm (-5 dBm max)	-20 dBm (-3 dBm max), -35 dBm (-18 dBm max)
Output impedance	100 Ω (+4 dBm), 650 Ω (-20 dBm mixed), 650 Ω (-20 dBm delay)	570 Ω (-20 dBm mixed), 1.6 k Ω (-20 dBm delay), 100 Ω (-35 dBm mixed), 330 Ω (-35 dBm delay)
Feedback send	Output level: +4 dBm (+17 dBm max) Output impedance: 100 Ω	
Feedback return	Input level: +4 dBm (+17 dBm max) Input impedance: 42 k Ω	
Modulation CV in	Control voltage (maximum input voltage): 0 ~ +10 V (± 20 V) Input impedance: 100 k Ω	
Modulation CV INV out	Output voltage: 0 ~ 10 V, N wave Output impedance: 1 k Ω	
AD-DA converting system	DC PCM (Digital Compounding PCM) equivalent to 16 bit converter	12-bit logarithm-compression
Memory capacity	64 k Word	64 k Word
Delay time range	0 ~ 2,250 ms/0 ~ 4,500 ms (x1.5VR max), 0 ~ 1,500 ms/0 ~ 3,000 ms (x1.5VR min), 0 ~ 10 ms: 0.1 ms step, 10 ~ 4,500 ms: 1 ms step	0 ~ 562 ms/0 ~ 1,125 ms (x1.5VR max), 0 ~ 375 ms/0 ~ 750 ms (x1.5VR min), 0 ~ 10 ms: 0.1 ms step, 10 ~ 1,125 ms: 1 ms step
Frequency response	10 Hz ~ 100 kHz ± 1 dB (direct), 10 Hz ~ 17 kHz ± 1 dB (delay 0 ~ 1,500 ms), 10 Hz ~ 8 kHz ± 1 dB (delay 0 ~ 3,000 ms)	10 Hz ~ 100 kHz ± 1 dB (direct), 10 Hz ~ 17 kHz ± 1 dB (delay 0 ~ 375 ms), 10 Hz ~ 8 kHz ± 1 dB (delay 0 ~ 750 ms)
S/N (IHF-A)	100 dB (direct) TYP; dynamic range 112 dB TYP, 88 dB (delay) TYP; dynamic range 100 dB TYP, 84 dB (delay) TYP min; dynamic range 96 dB min	90 dB (direct) TYP; dynamic range 112 dB TYP, 80 dB (delay) TYP; dynamic range 90 dB TYP
Total distortion	0.008% (direct) TYP, 0.03% (delay) TYP at 1 kHz	0.05% (direct) TYP, 0.08% (delay) TYP at 1 kHz, 0.2% max
Indication accuracy	$\pm 0.4\%$	$\pm 0.4\%$
Gain	Unity	Unity
Controls	Input attenuator, Feedback level (up, down), Delay output level (up, down), Modulation rate (up, down), Modulation depth (up, down), Delay time set (up, down), Delay time volume	Input attenuator, Feedback level (0 ~ 10), Delay output level (0 ~ 10), Modulation rate (0 ~ 10), Modulation depth (0 ~ 10), Modulation foot control, Delay time volume
Switches	Preset memory (Bank A/B, 1, 2, 3, 4), Filter, Delay range (time x 2), Delay phase, Modulation, Feedback phase, Output and input level select, Bypass, Power	Preset memory (1, 2, 3, 4), Delay time set (up, down), Feedback (on/off), Delay range (time x 2), Delay phase, Modulation (on/off), output and input level select, power
Jacks	[In & out] Input, output (mixed, delay), Feedback send, Feedback return, Modulation CV in, Modulation CV INV out [Remote] Delay (on/off), Hold (on/off), Playmate, Preset (shift)	[In & out] Input, Output (mixed, delay) [Remote] Delay (on/off), Hold (on/off), Playmate, Preset (shift)
Dimensions	482(W) x 47(H) x 300(D) mm (19" x 1.9" x 11.8"), 19 inch rack mountable (EIA-1U)	482(W) x 47(H) x 300(D) mm (19" x 1.9" x 11.8"), 19 inch rack mountable (EIA-1U)
Weight	5.0 kg (11 lb.)	5.0 kg (11 lb.)
Accessory	Connection cord x 2	Connection cord x 2



SDE-2000

The Digital Delay with an Array of Advanced Features in a Compact Package

- A delay of up to 640 ms can be obtained and the digital display enables you to see the delay time directly.
- High quality: the S/N ratio is 80 dB (delay, TYP), the frequency response is 10 Hz to 16 kHz (with a delay time of 0 to 320 ms), and distortion and noise are low.
- Since the send and return jacks are provided in the feedback loop, you can connect external devices, such as a graphic equalizer, to change the feedback characteristics, and select the waveform of the built-in LFO to change the characteristics of the effects such as flanging or chorus.
- Several remote control jacks are built in. They are very convenient in the studio and on stage.
- An input gain select switch (+4 dB/-20 dB) is provided to accommodate the level of the equipment to be connected.

REAR PANEL



SPECIFICATIONS

- Input level: +4 dBm (+29 dBm max)/-20 dBm (+5 dBm max)
- Input impedance: 56 k Ω • Output level: +4 dBm (+18 dBm max) at 600 Ω load/-20 dBm (-8 dBm max) at 10 k Ω load
- Output impedance: 100 Ω (+4 dBm), 650 Ω (-20 dBm, mixed), 550 Ω (-20 dBm, delay) • Feedback send level/impedance: +4 dBm (+16 dBm max)/100 Ω • Feedback return level/impedance: +4 dBm (+19 dBm max)/78 k Ω • CV in control voltage (maximum input voltage)/impedance: 0 ~ +10 V (± 20 V)/90 k Ω • AD-DA converting system: 12-bit logarithm compression • Memory capacity: 16 k Word • Delay time range: 0 ~ 320 ms/0 ~ 640 ms (1 ms step) • Frequency response: 10 Hz ~ 100 kHz ± 1 dB (direct), 10 Hz ~ 16 kHz ± 1 dB (delay 0 ~ 320 ms), 10 Hz ~ 7.5 kHz ± 1 dB (delay 0 ~ 640 ms) • S/N ratio (IHF-A): 90 dB (direct) TYP, Dynamic range 112 dB TYP, 80 dB (delay) TYP, Dynamic range 90 dB TYP • Total distortion: 0.05% max (direct) TYP, 0.08% (delay, 0.02% max) TYP at 1 kHz • Indication accuracy: $\pm 0.5\%$ • Gain: Unity • Jacks: [Input & Output] Input, Output (mixed, delay), Feedback send, Feedback return, External CV input [Remote] Delay (on/off), Single delay (on/off), Modulation (on/off), Hold (on/off) • Dimensions: 482(W) x 47(H) x 355(D) mm (19.0" x 1.9" x 14.0"), 19 inch rack mountable (EIA-1U) • Weight: 5.5 kg (12.1 lb.) • Accessory: Connection cord x 2

* The Level selection switch on the rear panel is effective for both input and output.

* Specifications and appearance subject to change without notice.